

**BSC 1010 General Biology I:  
The Molecular and Genetic Basis of Life  
Fall 2016 (MWF 8:00-8:50am)**

Marcy Kravec, PhD  
[mkravec@fiu.edu](mailto:mkravec@fiu.edu)  
OE-167C  
Office Hours:  
Wed, 2:00pm-4:00pm  
Fri, 11:00am-1:00pm

John Geiger, PhD  
[geigerj@fiu.edu](mailto:geigerj@fiu.edu)  
OE-224  
Office Hours:  
Mon, 1:00-3:00pm  
Tues, 4:00-6:00pm

**Course Description:** The study of life via genetic, molecular and cellular mechanisms. In other words, how you do what you do using a five letter code (ATCG, and U) that if extended, could go around the moon and back, and is packaged in compartments (your cells) so small you need a microscope to see them. Extraordinary, isn't it?

**Course Objectives:**

- How genetic information is transferred between generations
- How genetic information stored in DNA leads to proteins, life's essential molecule
- Understanding the process that enables one cell to become an organism
- How cells acquire and assimilate the energy they need to survive
- How cell signaling shapes organisms

**Course Themes:** Basic biological themes include structure dictates function, information flow, cellular organization (simple to more complex) and energy utilization.

**Learning Outcomes:**

You will be able to:

- Connect inheritance to meiosis
- Explain the variety of inheritance patterns
- Describe the replication, transcription and translation of DNA
- Detail the events necessary for cellular replication
- Compare energy flow and metabolism in animals vs. plants
- Identify the processes occurring as molecules are transported across membranes
- Predict the movement of substances across membranes
- Relate cell signaling to the growth of an organism

**How does this play out?**

We will be learning about genetic and molecular mechanisms and seeing how these are the basis for all levels of organization: (1) molecular/cellular; (2) tissues/organs/muscles; (3) organismal; and, (4) emergent properties. In other

words, we will be looking at biology from beneath the microscope to large scale observations (e.g., from DNA to a white whale).

Overview of the semester:

**How do we explain life?**

<b>Unit (3 weeks)</b>	<b>Information Flow</b>	<b>Structure/Function (selected examples)</b>
1: Sexual Replication	Parent → offspring (over generations)	Chromosomes DNA Enzymes Microtubules
2: Genetic Replication	Central Dogma (DNA → RNA → Pro ...at least for the most part)	DNA tRNA Ribosomes Proteosomes
3: Cellular Replication	Cell to cell (growth)	Chromosomes DNA Enzymes Microtubules
4: Energy for Replication (Sexual, Genetic, Cell)	Cell to cell (Energy for growth & maintenance)	Enzymes Mitochondria Chloroplast
5: Signaling for Replication (Sexual, Genetic, Cell)	Within and between cells	Membrane Receptors Cytoskeleton Organelles

Weeks will typically have the following format:

<b>Monday</b>	<b>Wednesday</b>	<b>Friday</b>
Intro – 1 <sup>st</sup> day  Other days: 2 quiz-quiz Content discussion  <b>-or-</b>  Exams or* Exam CCR** (Concept Convergence and Resonance)	Content discussion <ul style="list-style-type: none"> <li>• 20min – content</li> <li>• 10-15min – activity</li> <li>• 10-15min – content/discussion/ wrap up</li> <li>• 5min Reflection</li> </ul> <b>-or-</b> Post exam reflection Linking of units 30 min of content or activity 5min Reflection	Content discussion  Culminating activity (timing TBD as needed)

\*possibility of a 2 test-test

\*\*CCR (Concept Convergence and Resonance) = a time reserved for concept mapping, linking of biological concepts and discussing test material driven by your questions

**Textbook:** Biology by Raven, Johnson, Mason and Singer, 11<sup>th</sup> edition, ISBN: 9781259188138. For buying options, pls see Syllabus part 2 in Blackboard.

**iClickers:** For buying options, pls see Syllabus part 2 in Blackboard.

**Grade Scheme:**

- A: 90-100
- B: 80-89
- C: 70-79
- D: 60-69
- F: <59

**How you earn your grade:**

- I. Exams – 60%
- II. Quizzes – 10%
- III. iClicker – 10%
- IV. PLTL – 10%
- V. Class Activities & Homework – 10%

**I. Exams** (100pts each, 60% of total grade): All exams will focus on the unit they pertain to, but will also contain several cumulative questions to ensure that important themes are being learned and carried throughout the semester. Exams will be multiple choice and will be thoughtful and clear, not tricky. If you come to class, participate in the activities, study on your own and with your new friends, you will ace this course and leave being able to think like a biologist!

**II. Quizzes** (10pts each for 10% of total grade): Every Monday starting the 2<sup>nd</sup> week of class you will have a 2 quiz-quiz. You will take the quiz twice, once on your own (70% of the grade), and once in groups of 3 (30% of your grade). During your group portion of the quiz, you are allowed to discuss your answers and use 1page of handwritten notes. Quizzes will have 1-2 questions from previous material, 3-4 questions on the coming week's material.

**III. iClickers** (10% of total grade): Every class period you will have clicker questions on the material we are discussing. Clicker questions interspersed throughout the class serves as a marker, for both you and us, to see if you understand the material. This enables us to clarify misconceptions on the spot.

We begin using iClickers on Wednesday, 24 Aug, and official points begin accruing on Monday, 29 Aug.

**IV. PLTL (Peer Led Team Learning, 10% of total grade):** A weekly meeting with up to 11 of your classmates typically led by a biology major with junior or senior standing who did very well in this course. Using currently learned information, you will answer a list of questions, problems or case studies. This group setting

has been created as another way to help you engage with the material but in a more intimate setting. Studies have shown that this learning environment really works.

**V. Class Activities & Homework** (10% of total grade): We will be engaging in some kind of class activity every day. Quizzes and iClicker questions will earn their own points, but participation in other class activities will constitute these points. These activities may range from drawing concept maps to Venn diagrams, case studies, reflections, and more.

VERY important! We do not give busy work (we don't like to do it either). All homework assignments are meant to provide a good foundation of the material to be discussed. We have thought about each assignment carefully and feel that it adds to your body of knowledge. Please do your homework thoughtfully and attentively.

**Laws of the Land:**

**Cell phone use** - there is none. No calls, no texting, nothing. If you have some kind of emergency situation talk with one of us before class. Otherwise, no excuses. Turn it off.

**No computers** - unless we use it during class.

**Be respectful** - There are 182 of us in this room. Everyone deserves (and is encouraged) to participate in our discussions. Please do not have side conversations - if you have something important to say, we would like everyone to benefit from your wisdom or question. If it is not important, save it for when you are out of class.

**Academic Honesty** - is of the utmost importance. This is an indicator of how you will behave as a professional, whether as a physician, dentist, scientist, preschool teacher, etc. We all value people who are honest and trustworthy. Be one.

**Plagiarism** - don't do it. We will check, and we are not forgiving. The University is also unforgiving. University policy states that the proper consequence for plagiarism is failure of the course. A complaint will be placed in your file and has the power to follow you. No graduate school, medical school, employer, etc., will accept an applicant who waives on their integrity. Why should they? And by the way, if someone cheats off of your paper you are implicated as well. If you need the specifics, please read the Academic Misconduct procedures and sanctions as outlined in the *Student Handbook*.

(<http://academic.fiu.edu/polman/sec2web.htm> - two-forty-four)

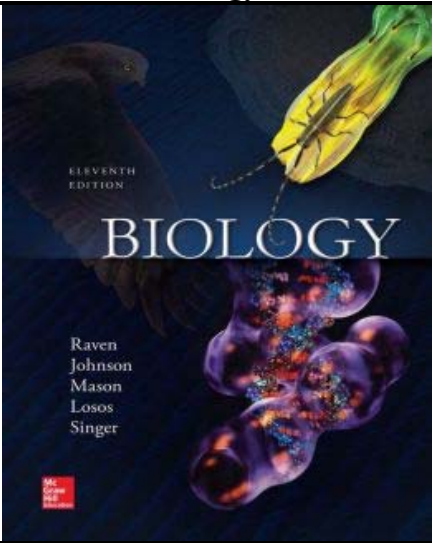
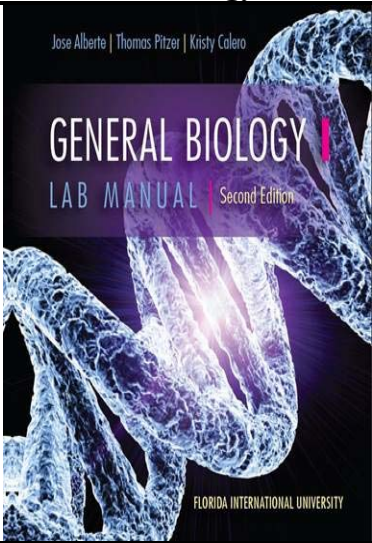
**Note:** if an exam falls on a religious holiday, please let us know within the first two weeks of the semester. If needed, we will change the date of the exam so that everyone can take it together.

**\*\*Syllabus is subject to change\*\***

**Fall 2016**  
**General Biology I (BSC-1010)**

**Textbook, iClicker and General Policies**

**REQUIRED TEXTBOOK**


General Biology I Lecture	General Biology I Lab
	
<b>Title:</b> Biology	<b>Title:</b> General Biology I Lab Manual
<b>Authors:</b> Raven, Johnson, Mason	<b>Authors:</b> Jose Alberte, Thomas Pitzer, Kristy Calero
<b>Edition:</b> 11 <sup>th</sup>	<b>Edition:</b> 2 <sup>nd</sup>
<b>ISBN:</b> 9781259188138	<b>ISBN:</b> 9781259158841

**TEXTBOOK BUYING OPTION**

McGraw Hill Website	Price	Click below to purchase packages	MMC Bookstore	Price
<b>Package Includes:</b> 1. General Biology I Lab (BSC-1010L) Manual 2. General Biology II Lab (BSC-1011L) Manual 3. Raven "Biology" 11th edition Textbook 4. Raven "Biology" 11th edition Ebook 5. Connect/Learn Smart  ISBN for Package:	\$167.00	<b><u>MGH Total Package</u></b>  *If you need to take General Biology I and General Biology II for your major, your best option is this one because it'll be used for both courses as well as the labs that go with it.	<b>Package Includes:</b> 1. General Biology I Lab (BSC-1010L) Manual 2. General Biology II Lab (BSC-1011L) Manual 3. Raven "Biology" 11th edition textbook 4. Raven "Biology" 11th edition EBOOK 5. Connect/Learn Smart  *The MMC bookstore also	\$238.55

9781260057720			has textbooks for rent which are 50% off the regular price.	
<b><u>Ebook with Connect &amp; Learn Smart</u></b> This gives you access to the Ebook for the entire Raven Biology 10 <sup>th</sup> edition AND access to Connect/Learn Smart. You will have access for 2 years.	\$76.50	<ol style="list-style-type: none"> <li>1. <a href="#">Click on this link</a></li> <li>2. Click "Register Now"</li> <li>3. Put in your email address</li> <li>4. If you need to buy an access code click on "Buy Online".</li> <li>5. To buy the Ebook with Connect and Learnsmart click on the first option that's called "<b>Connect Plus</b>".</li> <li>6. Click "submit". The rest is self-explanatory</li> </ol>	General Biology I Lab Manual only	\$73.35
<b>General Biology I Lab Manual Only</b>	\$55	<b><u><a href="#">GBI Lab Manual</a></u></b>		
<b>Free 2-week Ebook and Connect Trial:</b>  MGH has a free 2-week trial that allows you try out the Ebook and Connect to see if you would like to purchase it. To access the free 2-week ebook follow the steps to the right.		<ol style="list-style-type: none"> <li>1. <a href="#">Click on this link</a></li> <li>2. Click "Register Now"</li> <li>3. Put in your email address</li> <li>4. Click on "Start courtesy access"</li> <li>5. The rest is self-explanatory</li> </ol>		

## CLICKERS

	<p>You will need to purchase an <b>i-clicker2</b> if you want to receive <b>extra credit</b>. If you do not participate in the i-clicker questions, it will <b>NOT</b> count against you because it's used as extra credit. You can purchase the clickers at the MMC bookstore (see prices below).</p> <table border="1" data-bbox="954 1522 1349 1722"> <tr> <td><b>MMC Bookstore i-clicker2</b></td> </tr> <tr> <td>\$60 (Buy New)</td> </tr> <tr> <td>\$49.20 (Buy Used)</td> </tr> <tr> <td>\$46.20 (Rent New)</td> </tr> <tr> <td>\$38.40 (Rent Used)</td> </tr> </table>	<b>MMC Bookstore i-clicker2</b>	\$60 (Buy New)	\$49.20 (Buy Used)	\$46.20 (Rent New)	\$38.40 (Rent Used)
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## CLICKER POLICIES:

For every clicker question done in class, a student can receive a max of 2 points per clicker question. The student will get 1 point for participating in the question and another point for getting the answer correct. A total of 10% of your final grade will come from these points.

Students will **NOT** be allowed to use the i-clickerGO which is used through smartphones/ipads/laptops because some of the lecture rooms we use do not have wi-fi and therefore the i-clickerGO will not work.

Students can use the iclicker1 but keep in mind that two of the differences is that it won't show you how much battery life you have left on the clicker and it won't show you on the LCD screen a check mark once you submit your answer to know that it went through.

**\*\*If a student is caught with more than 1 clicker in their hand, the instructor will confiscate both clickers, take a picture of the clicker ID numbers, return the clickers to the students and let them know that neither one of them will be receiving any credit at all for the clickers.**

\*\*It is the student's responsibility to check their clicker points online within a week of us posting it on Blackboard. We do this so that they can make sure that their clicker is logging in their answers. This allows the instructor to fix any small technical issues. After that one week, there's nothing that the instructor can do if their clicker wasn't logging in points.

## GENERAL POLICIES

**Labs:** We do NOT give over rides into lab. If you are trying to get into lab and they are full, just keep checking my.fiu.edu to see if anyone drops so that you can take their spot. ***PLEASE NOTE: LABS WILL MEET THE FIRST WEEK OF CLASSES. PLEASE PURCHASE YOUR LAB COAT AND SAFETY GOGGLES (OR SAFETY GLASSES); AND BE PREPARED TO PERFORM A LAB THE FIRST WEEK.***

**E-mail:** Roberto can answer just about any question you may have about the course. So you can e-mail him at [genbio@fiu.edu](mailto:genbio@fiu.edu) and he will get back to you as soon as he can. Keep in mind that Roberto handles about 1,500 students per semester so if he doesn't respond to you right away give him about 24-72 hours (**not** including weekends) for a response. Sometimes he does read e-mails throughout the weekend but not always. Make sure to read the e-mails that he sends to everyone **thoroughly** because he addresses things that might answer your questions. If you ask a question that Roberto or the professor answers in a mass e-mail, we will not specifically address your e-mail, so make sure you read ALL e-mails!!! Also, use the discussion boards to ask questions that you think may have been covered or if you don't feel you're getting adequate responses from us--students will often answer questions for you faster than we will. If you have questions about the actual material that is being taught in the class, it's best to e-mail/talk to the professor of the class because they know exactly what details you are supposed to be learning. Please don't bother the professors with questions that Roberto could answer for you. Also, look at the FAQs page as a lot of questions are answered there.

**Disability Students:** If you are registered with the Disability Center at FIU make sure to provide Roberto with a copy of the document at the **beginning** of the semester so that he can accommodate you with whatever your needs are for the class.

**Religious Holidays:** Students must notify us **at the beginning of the semester** if there is a conflict with their religious holiday and an exam date so that we can make accommodations from the very beginning.



